

ABSTRACT OF THE INVENTION

Disclosed are methods that enable communications to be established regardless of the presence of communications blockers, e.g., firewalls and NATs, in the path between two computing devices. Two devices each establish communications with a rendezvous service. Through the service, the devices signal each other to set up direct, peer-to-peer communications between themselves. If the devices fail to establish direct communications, then they invoke a relay service that provides the illusion of direct communications. In another aspect, an originating device attempts to establish communications with a recipient, using an address and port number associated with the recipient. If that attempts fails, possibly because a firewall is blocking communications, then the originating device retries using a port normally held open by firewalls. If this attempt also fails, then the originating device invokes the services of a proxy to negotiate a port acceptable for use by the recipient and by any intervening firewalls.